

## Dear Valued Customer:



I am pleased to present you with this important information about your tap water. Our goal is to keep you abreast of the latest test results performed on your tap water and provide a list of those elements regulated by the Safe Drinking Water Act that were detected. We are happy to report that your tap water has been in full compliance with all federal and state regulations for 2003, as it has been in the past.

I would also like to take this opportunity to bring you up to date on the progress of our treatment plant improvements. In May of 2003 Manchester Water Works entered into a contract with Pizzagalli Construction of Burlington Vermont to fully renovate the 30-year old Water Treatment Plant. A significant part of this renovation includes the replacement of all the water filters in the plant and the installation of an ozone disinfection system. This state of the art equipment will be situated in a new building adjacent to the existing plant.

Cost of this project is about 28 million dollars. You have already seen an increase in your water bill and additional increases will become effective over this year and next. However, the overall impact of this project will translate to an increase in your water bill of only about \$25 per year to an eventual average of about \$240 per year in 2005. At that level, your bill will still be well below the typical water bill of \$305 for a single family home in New Hampshire. These required improvements and resulting rate increases are necessary to ensure the quality and safety of your drinking water.

On behalf of everyone at Manchester Water Works, I thank you for your support throughout this project and look forward to continuing to provide you with the best possible water service.

Sincerely,

*Thomas M. Bowen*

Thomas M. Bowen, P.E.  
Director

This report contains a summary of your drinking water quality. The Safe Drinking Water Act (SDWA) requires that utilities issue an annual "Water Quality" report to customers in addition to other notices that may be required by law.

This report details where our water comes from, what it contains, and the risks our water testing and treatment are designed to prevent.

Le rapport contient information concernant la qualité de l'eau de votre communauté. Faites-le traduire, ou parlez-en à un ami qui le comprend bien.

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

Manchester Water Works invites its customers to become involved with their water supplier. Your Board of Water Commissioners meets monthly at our offices. Please feel free to call us for information about dates and times. Additionally, you can find out more about Manchester Water Works on the internet at [www.ci.manchester.nh.us/citygov/wtr/](http://www.ci.manchester.nh.us/citygov/wtr/).

## Manchester Water Works

281 Lincoln Street  
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603-624-6494

## MANCHESTER WATER WORKS

# 2004

### Water Quality Report

A guide to understanding  
your drinking water  
and helpful water  
conservation tips.

## The Water Source

Every glass of tap water starts its journey to your faucet from Lake Massabesic. Located in Manchester and Auburn, the lake is a remnant from the last ice age. It was carved out by a glacier and, as a result, is generally shallow with a heavily silted bottom. These characteristics limit the system's ability to assimilate nutrients and dilute contaminants. Manchester Water Works recognizes the lake's fragile character and closely controls the use of it. We acquired nearly 8,000 acres of the most sensitive drainage and shoreline areas of the lake to protect the water supply from the detrimental effects of development. Additionally, our staff of patrol officers continually monitors all activity on the watershed and enforces the watershed protection regulations pertaining to Lake Massabesic.



Deer Neck Boat Launch

## Source Water Assessment

In compliance with federal mandates, the New Hampshire Department of Environmental Services (DES) performed a Source Water Assessment of Lake Massabesic in September of 2002. This assessment looked at the entire drainage area for the lake and ranked its vulnerability to contamination. It did not, however, consider the protection measures that Manchester Water Works has in place to protect your drinking water. You may view this assessment at DES or at the following site: <http://www.des.state.nh.us/dwspp/report/MANCHESTER.pdf>

This report gave the Lake Massabesic watershed four high and four medium vulnerability ratings, while ranking it at low vulnerability for five additional categories. The report also raised concerns over the detection of MTBE, a gasoline additive that comes from motor boats, known Potential Contamination Sources (PCSs) located within 4000 feet of the plant intakes, and potential contamination from highways and wild animals. (Animals have been shown to have pathogens that may cause gastrointestinal illness in humans if the water is not purified and disinfected.)

Overall the report presented a positive picture of Manchester's source water and its condition. While Manchester Water Works has done much to protect the purity of Lake Massabesic, we understand more than ever that we must rely upon the assistance and practices of each citizen and each community in the watershed. Working together we can ensure the long term quality of this precious resource.



Lake Massabesic Water Supply

## CONSERVATION TIPS

1. *Check faucets for leaks. One faucet can waste up to 6000 gallons per year.*
2. *Water lawns early in the morning and at dusk. Stay away from watering during the day.*
3. *Do not wash your sidewalk or driveway.*
4. *Install water saving water fixtures and toilets.*
5. *Take 5 minute showers or fill bath with 5 inches of water.*
6. *Consider buying a water saver washing machine.*
7. *When you wash your car, rinse once, wash with a bucket of soapy water, and rinse right away.*
8. *Use swimming pool covers to minimize evaporation.*
9. *Dishwashers use about 10 gallons of water, while hand washing uses about twice as much.*
10. *Change wasteful habits. Use water wisely.*

## Health Information

To ensure that tap water is safe to drink, the EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it can dissolve many natural minerals and, especially in the case of ground water, radioactive material. Water is also subject to contaminants resulting from the presence of animals or human activity. The wide variety of contaminants that may be present in source water include:

- A) Microbiological contaminants, such as viruses and bacteria originating from sewage, septic systems, agricultural livestock and wildlife;
- B) Inorganic contaminants, such as road salt, metals, industrial or domestic wastewater discharge, oil and gas production, mining or farming;
- C) Synthetic organic chemicals, such as petroleum products from gasoline and oils, or pesticides and herbicides and are present in runoff and as residues from household use;
- D) Radioactive contaminants, either natural or man-made. Radon is one such natural, radioactive contaminant currently being regulated by the EPA. Manchester's water does not contain radon.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk for infections. These people should seek advice about drinking water from their health provider. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Safe Drinking Water Hotline at 1-800-426-4791.

“It is the goal of the Manchester Water Works to reach and educate our customers about the importance of clean safe drinking water and the environment. To do this we promote a public outreach program directed at the elementary schools in our area. With their cooperation, we educate tomorrow's consumers through classroom presentations, poster contests, water science fairs, and career days to name a few. It is our sincerest hope that these future water users will respect and conserve all forms of water, starting at their tap.”

## Renovations Underway!

The Manchester Water Works is making numerous changes to its Water Treatment Plant that will have a direct impact upon you, our customer. When the system is finished in 2005, these improvements to treatment and filtration will result in cleaner, more appealing tap water. Other changes will be made specifically to reduce or eliminate unwanted by-products of chlorination to make your water safer. When complete the new water purification system will use ozone and chloramines in place of chlorine to disinfect the tap water.

*Ozone* has been used for nearly a century to purify water and is a much safer alternative to chlorine. This method has proven to be much more effective at purifying and improving the aesthetic quality of tap water.

Manchester Water Works will make every effort to notify our customers on the progress of this important project until the final completion in 2005.



*Water Treatment Plant Filter-Ozone additions*

# Water Quality Table

The table to the right provides information about those contaminants that were detected in Manchester's water in 2003. During the year, Manchester had multiple analyses run by the New Hampshire Department of Environmental Services for well over 100 individual contaminants. At the same time, Manchester Water Works' laboratories perform approximately 40 daily tests on the water to assure that it is safe to drink. Please feel free to call us at 624-6482 for additional information about your water quality.

## KEY TO TABLES

### Definitions

<b>MCLG:</b>	Maximum Contaminant Level Goal, or the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
<b>MCL:</b>	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
<b>MRDLG:</b>	Maximum Residual Disinfection Level Goal. The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
<b>MRDL:</b>	Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
<b>AL:</b>	Action Level, or the concentration of a contaminant that, when exceeded, triggers treatment or other requirements which a water system must follow.
<b>TT:</b>	Treatment Technique is the required process intended to reduce the level of a contaminant in drinking water.

### Abbreviations

ppb	= parts per billion
ppm	= parts per million
pCi/l	= picocuries per liter, measurement of radiation
NA	= not applicable
NTU	= Nephelometric Turbidity Unit
ND	= not detected
<	= less than
mg/l	= milligrams per liter
BDL	= below detection limit
P	= presence of bacteria

## 2003 CONTAMINANT RESULTS

CONTAMINANT	UNIT	MCL	MCLG	AVERAGE LEVEL	RANGE	VIOLATION	MAJOR SOURCE
<b>Inorganic Contaminants</b>							
Lead	ppb	15 (AL)	0.0	10.0 90 <sup>th</sup> Percentile	0 – 22.0	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3 (AL)	1.3	0.034 90 <sup>th</sup> Percentile	0 – 0.47	NO	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Barium	ppm	2.0	2.0	0.0127	0.0111–0.144	NO	Erosion of natural deposits; Discharge from drilling wastes and metal refineries
Fluoride	ppm	4.0	4.0	1.02	0.67 – 1.66	NO	Water additive which promotes strong teeth; Erosion of natural deposits
Chlorine	ppm	4.0 (MRDL)	NA	0.51	0.02 – 1.98	NO	Drinking water disinfectant
Nitrate-N	ppm	10.0	10.0	0.035	0 – 0.09	NO	Erosion of natural deposits; Runoff from fertilizer; Sewage leaching from septic tanks
<b>Microbiological Contaminants</b>							
Total Coliform	P	<5%	0%	<1%	0 – 1%	NO	Naturally present in the environment
Turbidity	NTU	0.3	0.0	0.0575	0.04 – 0.09	NO	Soil runoff
Total Organic Carbon	mg/l	TT	NA	2.3	1.8 – 3.1	NO	Naturally present in the environment
<b>Volatile Organic Contaminants</b>							
TTHMs (Total Trihalomethanes)	ppb	80	NA	57.4	20 – 89	NO	By-product of drinking water chlorination
Total Haloacetic Acids (5)	ppb	60	NA	23.9	11 – 38	NO	By-product of drinking water disinfection
<b>Radiological Contaminants</b>							
Gross Beta Picocurie/L	pCi/l	50.0	0.0	2.09	2.09	NO	Decay of natural and man made deposits